

datis, parietibus crassulis; si thallus non est alienus, hæc species proprium genus sistit, quod *Heterostroma* dicere liceat. Conferendus est thallus in *Thelopsi melathelia* (quam etiam ad Onegam detexit præstantissimus Simming) etiam texturam *Chroolepi* habens, ut facile crederes hic agi de lichenibus parasitis."

We scrambled to the summit, traversing the ridge, finding nothing but *Lecidea rivulosa*, Ach., and *L. contigua*, Fr., on the very highest points, and descended by the Foxes' Path, where *Allosorus crispus* (Bernh.) grows abundantly, and where I also gathered *Placopsis gelida* (L.).

Thus this excursion has added to our British Flora a score of new lichens, of which six are entirely new to lichenology, and a new species of *Sphæria*,—proving that our Welsh mountains, if thoroughly searched, would yield an abundant harvest of good, rare, and novel lichens, and probably many novelties in other natural orders.

Dr. Fraser kindly permits me to add a list of the mosses which he found near Dolgelley, chiefly on Cader Idris:—

<i>Andreæa alpina</i> .	<i>Orthotrichum Lyellii</i> .
— <i>rupestris</i> .	— <i>crispum</i> .
— <i>Rothii</i> .	<i>Diphyseium foliosum</i> .
<i>Sphagnum acutifolium</i> (in fruit).	<i>Pogonatum urnigerum</i> .
<i>Gymnostomum rupestre</i> .	— <i>alpinum</i> .
<i>Dicranum squarrosum</i> .	<i>Bryum polymorphum</i> .
— <i>heteromallum</i> .	— <i>crudum</i> .
— <i>falcatum</i> .	— <i>pseudo-triquetrum</i> .
— <i>majus</i> .	— <i>alpinum</i> .
<i>Leucobryum glaucum</i> .	— <i>cirrhatum</i> (intermedium).
<i>Campylopus longipilus</i> .	— <i>nutans</i> (a variety).
<i>Distichium capillaceum</i> .	— <i>Zierii</i> .
<i>Didymodon rubellus</i> .	<i>Entosthodon Templetoni</i> .
— <i>cylindricus</i> .	<i>Physcomitrium ericetorum</i> .
<i>Trichostomum homomallum</i> .	<i>Bartramia fontana</i> .
<i>Encalypta vulgaris</i> .	— <i>pomiformis</i> .
<i>Hedwigia ciliata</i> .	— <i>ithyphylla</i> .
<i>Schistidium maritimum</i> . (Bar-	— <i>arcuata</i> .
mouth.)	<i>Tetraplodon mnioides</i> .
<i>Grimmia Doniana</i> .	<i>Cedipodium Griffithianum</i> .
— <i>patens</i> .	<i>Anæctangium compactum</i> .
<i>Racomitrium aciculare</i> .	<i>Antitrichia curtispindula</i> .
— <i>fasciculare</i> .	<i>Hypnum rutabulum</i> (a variety).
— <i>heterostichum</i> .	— <i>loreum</i> .
— <i>lanuginosum</i> .	— <i>revolvens</i> .
<i>Ptycomitrium polyphyllum</i> .	— <i>pulchellum</i> .

LX.—*Diagnostic Characters of some new Genera and Species of Prionidæ.* By FRANCIS P. PASCOE, F.L.S., F.Z.S., &c.

SARMYDUS.

Antennæ compressæ, articulo tertio quam scapus longiore et latiore. Prothorax transversus, lateraliter spinosus. Femora et tibiæ compressæ. Prosternum productum.

*Dorycera* affinis, sed antennæ valde diversæ.

*Sarmyds antennatus.*

*S.* fuscescens; elytris costatis, postice subreticulatis; antennis articulis quatuor basalibus fuscis, cæteris flavis. Long. 11 lin.

*Hab.* Sarawak.

XAURUS.

(♀) Caput infra antennas paulo productum. Antennæ breves, articulo tertio quam scapus brevior. Prothorax irregularis, lateraliter spinosus. Parapleura metathoracis oblongo-quadrata.

*Tragosomæ* affinis, sed antennæ et parapleura diversa.

*Xaurus depsarius.*

*X.* fulvo-brunneus; elytra ampliata, intricate punctata. Long. 20 lin.

*Hab.* Morty.

NEPIODES.

Mandibulæ elongatæ. Scapus antennarum perbrevis. Oculi magni, supra approximati. Prothorax transversim subquadratus, inermis.

*Ægosomæ* affinis.

*Nepiodes cognatus.*

*N.* rufo-fuscus; elytris tricostatis. Long. 8 lin.

*Hab.* Sarawak.

ZARAX.

Palpi brevissimi. Antennæ incrassatæ, breves, muticæ, scapo brevissimo. Tarsi brevissimi, infra canaliculati.

Cum *Macrotomate* prosterno congruit, aliter diversus.

*Zarax eurypodiioides.*

*Z.* piceus, supra crebre et subtiliter punctatus; elytris obsolete octocostatis. Long. 11 lin.

*Hab.* Sarawak.

OMOTAGUS.

Tarsi lineares, articulis tribus basalibus infra ad apices biscopuliferis. Mandibulæ dentibus duobus magnis conjunctis instructæ.

*Hystato* affinis, sed mandibulis aliis.

*Omotagus Lacordairii.*

*O.* capite prothoraceque nigris, opacis; hoc subtilissime granuloso-

punctato, lateribus dentato-serratis; elytris crebre punctulatis, piceis, nitidis, leviter quadricostulatis. Long. 34 lin.

*Hab.* Dorey.

The above diagnoses are made from specimens forming a part of the rich collection made by Mr. Wallace in the Malayan archipelago, and will be treated in detail in my 'Longicornia Malayana.' In the interval they will be redescribed by Prof. Lacordaire in the forthcoming volume of the 'Genera,' and they are now in his hands for that purpose. I am already in possession of his views regarding the affinities of these genera; and although they are not in all cases in accordance with what is here given, I have thought it better to let what I had previously written stand without any alteration.

I have taken this opportunity to describe some new species of the family from other localities. One is an entirely new genus, from the extreme north of Australia; and another is a second and very distinct species of *Hoplideres*, from Madagascar\*.

*Prionus Gerrardi.*

*P. capite* prothoraceque nigrescentibus, hoc dentibus duobus latis utrinque instructo; antennis 11-articulatis, articulis a quinto ad decimum apice unilateraliter productis.

*Hab.* Madagascar.

Head and prothorax brownish black, roughly punctured; eyes large and nearly approximate above; each side of the prothorax with two broad teeth, the posterior angle not produced, the disk with three large flat tubercles, punctures coarse and crowded; scutellum coarsely punctured; elytra elongate, parallel, light brown, thickly punctured, the intervals very slightly wrinkled, each elytron with four raised lines, which by their union present a small reticulate area near the apex, the latter completely rounded; body beneath glossy reddish brown; legs rather feeble, clothed with short stiffish hairs; antennæ 11-jointed, the fifth to the tenth joints, inclusive, prolonged on one side at their apices, the last elongate-ovate. Length 18 lines.

A somewhat long and depressed species, with feeble legs ( $\sigma$ ), not suggestive of any near ally. I have named it after the late Mr. W. S. Gerrard, who fell a victim to the climate while collecting in Madagascar.

\* The names of two of the genera of Prionidæ are preoccupied, viz. *Chiasmus* and *Hephialtes*, J. Thoms., the former previously used in the Hemiptera by M. Mulsant, and the latter (more correctly *Ephialtes*) by Keyserling and Blasius for a genus of birds. *Chiasmus* I propose to change to *Chiasmetes*; *Ephialtes* is unknown to me. *Cacosceles*, Newm., will, I fear, be regarded as too near to *Cacoscelis*, Chev., which has the priority.

*Prionus tetanicus.*

*P. fuscus*, prothorace scutelloque nitidis, interrupte et subtiliter punctatis; elytris rugosis, fere obsolete quadricostatis.

*Hab.* Chosan (Japanese Sea).

Dark brown; head not very closely punctured: prothorax shining, two rather strong teeth on each side, the posterior angle well-marked, but not spiniform; punctures very fine, interrupted in the middle; scutellum smooth and shining, marked by a few small punctures: elytra somewhat narrow, finely rugose, very closely covered with very numerous small punctiform impressions separated from each other by minute zigzag lines, very clear and distinct under a good lens, each elytron marked by two scarcely elevated but sufficiently obvious lines: body beneath and femora glossy brown: legs rather long, robust; tibiæ spinosely rugose, especially the two posterior pair, fluted; tarsi reddish chestnut: antennæ 12-jointed, the joints large, mostly depressed and dilated on both sides from the third to the ninth or tenth, but gradually less on one side as they approach the twelfth, which is oblong-ovate. Length 14 lines.

Allied to *P. Besicanus*, but, among many other points of difference, distinguished by the numerous small spines covering the intermediate and posterior tibiæ. I owe my specimen to Arthur Adams, Esq., R.N.

*Hoplideres levicollis.*

(♀) *H. brunneus*, subnitidus; prothorace bicalloso, obsolete punctato; elytris antennisque muticis.

*Hab.* Madagascar.

Reddish brown, subnitid; face with crowded but very shallow punctures: prothorax with five spines on each side, the two posterior united at the base; the disk with two large flat callosities, from each of which projects a short lateral tooth, the interval obsoletely punctured; scutellum nearly semicircular, minutely punctured: elytra very glossy and thickly punctured at the base, suddenly becoming very finely and then almost obsoletely punctured, and at the same time losing much of the glossiness, not spined at the shoulders, and the sides beneath not serrated: body beneath with a short, greyish pile; antennæ without spines. Length 14 lines.

Much shorter and more glossy than *H. spinipennis*; the head and prothorax not coarsely and roughly punctured; the shoulders and sides of the elytra beneath without armature, the punctures at their bases equally disposed from side to side, and no spines on the antennal joints. On account of the last character, it comes rather badly into *Hoplideres*, in a technical point of view.



*Ægosoma lacertosum.*

*Æ. brunneo-rufum*; clytris fuscis, opacis, costis valde elevatis, rufis, subnitidis, sutura apice breviter mucronata.

*Hab.* Sylhet.

Deep red or brownish red; head and prothorax covered with numerous minute granules, the latter with the sides gradually broader from the apex to the base, the posterior angle subacuminate, slightly recurved; scutellum scutiform; clytra dark brown, opaque, very minutely granulate, the ribs strongly raised, reddish yellow, glabrous, and subnitid, the sutural angle shortly mucronate; body beneath with a thin, rough, greyish pile; legs reddish brown, the knees black and glabrous. Length 14 lines.

A very distinct species, on account of its colour and the strongly raised glabrous lines of its clytra.

## ELAPTUS.

Antennæ corpore longiores, subcompressæ, articulis tertio et quarto æqualibus, sequentibus gradatim longioribus, ultimo acuminato. Oculi magni. Prothorax transversus, carina laterali pone medium paulo angulata. Elytra depressa, breviuscula, apice rotundata. Femora brevia; tibiæ haud dentatæ; tarsi subangustati, æquales, articulis tribus basalibus quam ultimus vix longioribus. Abdomen segmentis longitudine æqualibus.

Apparently allied to *Sarmyds*, which I have not at present an opportunity of examining. From *Notophysis*\* it differs in the antennæ and eyes.

*Elaptus simulator.*

*E. fuscescens*, nitidus; clytris fulvescentibus.

*Hab.* Cape York (Northern Australia).

Glossy, brownish, the clytra inclining to fulvous; head roughly punctured, the eyes occupying the greater part of it; prothorax a little broader than the head, finely and rather closely punctured, lateral ridge slender, depressed, slightly emarginate behind the angle; scutellum rounded behind; clytra finely and closely punctured, each puncture with a short greyish hair, three scarcely raised lines on each; body beneath and legs with a greyish pile. Length 10 lines.

P.S. Since this was written, M. Lacordaire informs me that this Prionid belongs to his "groupe Clostérides."

\* A species of *Notophysis* in my collection has the following differences from Serville's description of his *N. lucanoides*:—mandibles not denticulate internally; head and prothorax not "very smooth," and clytra not spined at the sutural angle; the tarsi, also, do not agree. The male is nearly black, with the antennæ scarcely two-thirds the length of the body; the female is larger, light chestnut-brown, the antennæ not half the length of the body.

LXI.—Notes on *Pelonaia corrugata*.

By W. CARMICHAEL M'INTOSH, M.D., F.L.S.

[Plate XII.]

A BRIEF description (with drawings) of this animal was read in Section D of the British Association, in August last, under the idea that it was a new molluscid animal—a mistake which arose from the defective descriptions and figures of Messrs. Forbes and Goodsir in the 'Edinburgh Philosophical Journal' and the 'British Mollusca' of Messrs. Forbes and Hanley. Prof. Huxley, in remarking on the paper, observed that the dependence placed on the descriptions of the above-mentioned authors was too great, and he thought the animal was a *Pelonaia*. I am especially indebted, however, to the late Mr. Joshua Alder, who examined the specimen, its description, and the drawings, for much valuable information on the subject, as well as for the accurate determination of the species.

The specimen (Pl. XII. fig. 1) from which the original description was drawn up had been about four years in spirit before an examination showed its true nature; and then, unfortunately, the state of the preparation prevented so precise an examination as might have been desirable. The transmission of another small specimen, however, in a fresh condition has enabled me to correct some doubtful points in the previous description. Both examples were procured at St. Andrews, by relatives,—the larger being cast on shore after a severe storm, the smaller occurring amongst the débris from the deep-sea fishing off the Bay\*. Both were injured at the anterior end. The following description is thus necessarily fragmentary.

The test in the larger example measures about  $1\frac{3}{4}$  inch in length, possesses a club-shaped outline, and is of a brownish-sandy colour, resembling an elongated Florence flask with the bottom a little produced and the neck much elongated. In the other specimen the form is more strictly club-shaped, the bulbous end being smaller in proportion to the stalk. The case is rough to the touch, like sand-paper, and bears at the bulbous end a series of minute hairy processes, while the apertures are situated at the extremity of the elongated portion. In structure the external tunic is fibrous, dense, and elastic, and, with the exception of the terminal portion of the smaller end in the larger specimen, loaded with minute and closely adherent sand-particles imbedded in a hyaline matrix. Like the more regular and exquisitely fitted, though larger-grained and less elastic

\* A third, much less coated with sand, has just been sent from the same locality.

tubes of *Pectinaria belgica*, the test is little affected by hydrochloric acid or caustic potash, the former only disengaging a few bubbles of gas from some calcareous fragments, the latter rendering the basis structure more translucent, but not destroying its cohesion. Such an investment, as usual, is calculated to restore the shape of the animal, by whatever means alteration is brought about. In the smaller specimen the transverse wrinkles were very distinctly marked, encroaching even on the bulbous end. So firm was the test in the latter, that very considerable pressure produced no alteration. The test, however, varies much in this respect in different examples.

The hairs are evidently essential parts of the test of the animal, like those of *Cynthia ampulla*. Microscopically, they present a rugged, semiopaque, fibro-granular aspect, having a hyaline basis structure containing many granules, with granular débris of mud and sand attached to it. The sand-particles were often largest at the base of each process; and the edges were rough from projecting threads of the basis structure with adhering débris. On the whole, the process was much finer than that of *Cynthia ampulla*, which, under the same power (350 diam.), showed a great increase of coarse sand-particles, Diatomacæ, sponge-spicula, and Foraminifera, together with Crustacean and Annelidan hairs, shells of *Cyprides*, and other débris.

Underneath the external matrix of the test generally is a layer of interlaced broad fibres, which cross each other at right angles, the longitudinal ones being somewhat fasciculate, the circular less so. The individual fibres (fig. 4) are of large size and faintly striated longitudinally, and some contain traces of nuclei. At some parts a cellulo-granular texture is incorporated with the layer, the fibres in that case following for the most part one direction, and leaving intervals between the fasciculi, in which the cellulo-granular structure is situated. This, however, may have been due to the ordinary epithelial lining of the layer superseding it. This muscular coat is very easily separated from the whitish internal surface of the test in spirit; and in the fresh specimen it is scarcely more difficult, with the exception of the narrow portion, where the fibres adhere to the test more firmly. It is also proportionally thicker in the latter region. The general appearance of the layer is shown in fig. 2, *f*.

On removing the soft pinkish textures from the test, the appearance is as represented in fig. 2, a great portion of the body of the animal being occupied by the branchial apparatus, which lies within the muscular coat. When minutely examined with the naked eye or a lens, this structure is found to be ribbed

longitudinally and crossed by regular transverse bands, on the whole somewhat resembling the same apparatus in *Boltenia*\*. Under a power of 90 diam. (fig. 5), the longitudinal fibrous bands (*a*) are crossed by circular belts (*b*) of nearly equal thickness, and the square or oblong spaces thus formed are again subdivided by more slender bands (*c*). All these bands project inwards from the ovoid branchial spaces; and thus, when viewed from the inner surface, the latter are in the background, as in the figure. A portion of the branchial membrane, somewhat compressed, and with the small circular band (*c*) removed, is represented from the spirit preparation in fig. 6,  $\times 200$  diameters. The aperture is surrounded by a well-defined minutely granular rim of cells, which cells in life are covered with long and powerful cilia, whose remains are apparent even in the spirit preparation. The branchial fenestrated membrane is continued along the stalk of the animal to the oral aperture (*a*, fig. 2). This oral aperture, when removed from the test, is found to be situated in the largest and most muscular of the terminal cones; and when this is contracted, a little within the opening are a number of small red specks. Below these is a ring of minute filiform tentacles (fig. 3), composed of a transparent basement structure, with numerous granules.

The termination of the slender end in the larger example as seen under a lens is shown in fig. 7; and it had a less sandy investment than the rest of the animal: indeed towards the end the sand-particles obtained an individuality not seen elsewhere, from the predominance of the tough basis substance. In the smaller specimen this part was similar to the rest in this respect. The oral aperture is seen at *a*, and the anal at *b*. Each of these apertures had a concentric and finished arrangement of carunculæ and papillæ externally. The external investment of the narrowed portion is the densest on the animal, though, as above mentioned, the sand-particles are less closely set towards the tip. The glistening white fibrous lining of the test is also thickened; it becomes more yielding where it expands to meet the bulbous portion. The muscular layer of this part formed a powerful tube (*f*, fig. 2) of external circular and internal longitudinal fibres.

The endostyle lies along the side of the branchial chamber (*g*, fig. 2), and forms a somewhat zigzag pinkish band. A portion from the larger specimen is seen in fig. 9, viewed under a lens. This structure looks like a simple folded basement membrane, with a closely set series of granular cylindrical epithe-

\* Savigny, 'Mémoires sur les Animaux sans Vert.' 2nd part, 1<sup>er</sup> fascic. pl. 5. I am indebted to Dr. Lauder Lindsay for kindly placing a specimen of *Boltenia* from Otago, New Zealand, at my disposal.